

2 Marks Questions

- ① What is IRC ?
- ② Define traffic Rotary.
- ③ What is cutback bitumen
- ④ Name common binders.
- ⑤ Differentiate between Subgrade and subbase
- ⑥ What do you mean by super elevation ?
- ⑦ What is OSD.
- ⑧ What do you mean by tack coat ?
- ⑨ What do you mean by highway alignment ?
- ⑩ Define Camber.
- ⑪ Define median of a Road.
- ⑫ Define Right of way
- ⑬ Name common borders for Roadwork
- ⑭ Name important transportation organization
- ⑮ Define cement Stabilization.
- ⑯ state necessity of highway planning.
- ⑰ state IRC specification for width of carriage way for various classes of roads.
- ⑱ Compare ~~between~~ bitumen and tar.
- ⑲ Draw different type of general shape of transition curve
- 20 what do you mean by soundness test
- 21 what are the function of IRC.
- 22 what is Super elevation.
- 23 what do you mean by Impact test.
- 24 what do you mean by CBR test.
- 25 Define Gradient.

(26) what is necessity of highway planning?

(27) Define OSD.

(28) List 4 members of Jayakar Committee.

(29) What is abrasion test.

(30) Define Subgrade and subbase.

(31) Define flexible pavement.

(32) Define Rigid Pavement.

(33) What is cement stabilization.

(34) Mention 2 functions of CRR.

(35) Define fly ash stabilization.

5 Marks Question

① Define Camber. What are the objectives of providing Camber? Specify the recommended ranges of Camber for different types of pavement surface.

② Explain PIEV theory.

③ Discuss the significant recommendation of Jayakar committee report.

④ Calculate SSD for a design speed of 60 kmph for

(i) 2 way traffic on a two lane road.

(ii) 2 way traffic on a single lane road.

Assume coefficient of friction 0.4 and reaction time of driver as 3 sec.

⑤ Describe Los Angeles abrasion test for road aggregates and explain its significance.

⑥ Discuss CBR test.

⑦ Describe rate of Superelevation for a horizontal highway curve of radius 750 m and speed 110 kmph.

⑧ Calculate the SSD for a design speed of 110 kmph. Take total reaction time 2.5 seconds.

⑨ What are significant recommendations of Jayakar committee and how did this help in road development?

⑩ What is OSD? Derive an expression for calculation of OSD on a highway.

⑪ What is SSD? Derive an expression for calculation of SSD on a highway.

⑫ What is flakiness index of road aggregate? What is its significance?

⑬ Draw a typical cross-section of rigid pavement road and mention the layers of road from the base.

⑭ Explain in detail lime stabilization.

⑮ Describe following tests on aggregates. (a) water absorption test (b) crushing strength test (c) Impact test.

⑯ Define Gradient. Describe different types of gradients.

- 17) Discuss the function of various pavement components.
- 18) Calculate the min. non passing sight distance on a highway at a descending gradient of 6%. Given the following data
- (a) Design speed = 80 kmph
 - (b) Reaction time = 2.5 sec.
 - (c) coefficient of friction = 0.4.
- 19) Explain CBR test in details.
- 20) Design the rate of super-elevation for a hz highway curve radius 750m and speed 110 kmph.

7 Marks Question

- ① Design the rate of Super-elevation for a horizontal highway curve of radius 450m and Speed 90kmph. Assume all other data.
- ② The speed of overtaking and overtaken vehicles are 70 & 40kmph respectively on a 2way traffic road. If the acceleration of overtaking vehicle is 0.99 m/sec^2 . Assume all other data.
 - (i) Calculate safe overtaking distance.
 - (ii) Mention the min length of overtaking zone.
- ③ Derive an expression for calculating OSD on a highway.
- ④ Calculate the total widening on hz curve for a state highway. Given following data:
 - (i) Design speed of highway = 60kmph.
 - (ii) Pavement width = 7m, (iii) length of wheel base = 7.0m
 - (iv) Radius of hz curve = Ruling min radius.Assume any other data.
- ⑤ Briefly explain the causes of failure of pavement.
- ⑥ Explain PLEV theory and state how it explains reaction time.
- ⑦ Define Superelevation. Design Super elevation reqd. at a hz curve of radius 250m for design speed of 100kmh. Should there be restriction in speed?
- ⑧ (i) what is Superelevation? (ii) A highway is provided with a hz curve of radius 300m in certain locality. Calculate the Superelevation needed to maintain the design speed of 90km/hr. Take coefficient of friction = 0.15.
- ⑨ Calculate the SSD on a highway at a descending gradient of 2.35%. for a design speed of 65kmph. Assume all other data as per IRC.
- ⑩ Explain briefly CBR test with neat sketch.
- ⑪ write short notes on:
 - (a) Mech. stabilization
 - (b) Lime stabilization
 - (c) Cement stabilization
 - (d) Fly ash stabilization
- ⑫ what do you mean by SSD? Also give detailed analysis.
- ⑬ Compare between Bitumen and Tar.
- ⑭ what do you mean by passing sight distance? Also give a detailed analysis.
- ⑮ with neat sketch, describe methods of provision of Super elevation.
- ⑯ Describe Bituminous Macadam.